

# Hiroki WATANABE

## Keio University

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A computer science researcher with research interests in network architecture (especially in edge computing), protocol stack, and SDN/NFV. Interests in not only network system but also in all layers of computer system such as hardware design, OS, middleware, and userland applications. Experience in developing a session layer protocol in userland providing applications with rich communication paths (multipath, DTN, middlemox, and etc.) in C language and in developing a set of middleware for distributed edge cloud computing in C language.

## EDUCATION

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APR. 2018 – *Current*    Ph.D student in ENGINEERING, **Keio University**, Japan

MAR. 2018    M.E. degree in ENGINEERING  
from **Keio University**, Japan (GPA: 3.67/4)  
Thesis: “**Design and Implementation of A Communication Mechanism  
for Application-level Service Chaining**” | Advisor: Fumio TERAOKA

MAR. 2016    B.E. degree in INFORMATION AND COMPUTER SCIENCE  
from **Keio University**, Japan (GPA: 3.81/4)  
Thesis: “**A Prototype Implementation of A Session Layer on New  
Generation Network Architecture: ZNA**” | Advisor: Fumio TERAOKA

## EMPLOYMENT

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MAR. 2017 – *Current*    Research Assistant at IJ Innovation Institute  
Developing Software around LKL and MPTCP

AUG. 2016 – SEP. 2016    Internship at Yahoo! Japan  
Developing Cassandra at Data Platform Department

## LANGUAGES

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JAPANESE: Native Speaker  
ENGLISH: Good Command  
GERMAN: Basic Communication

## PROGRAMMING SKILLS

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Application development using C/Python/Go  
Network operation (routers, L2/L3 switches, servers, etc.)

## PUBLICATIONS

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### Journal Articles

1. Hiroki Watanabe, Takao Kondo, Kunitake Kaneko, Fumio Teraoka, “**Inserting Layer-5 to Provide**

**Applications with Richer Functions through Common API,"** *IEICE Transactions on Communications*, Vol. E101-B, No.9. (will be published)

## Proceedings

1. H. Watanabe, T. Kondo, K. Kaneko and F. Teraoka, **"Separating Communication Policies and Mechanisms to Make Protocol Layering Clearer,"** *2017 26th International Conference on Computer Communication and Networks (ICCCN)*, Vancouver, BC, 2017, pp. 1–9. (Acceptance Rate: 27%)

## Workshops

1. Kazuki Hayashi, Hiroki Watanabe, Takao Kondo, Fumio Teraoka, **"Automatic Construction Mechanism for Experimental Virtual Network Considering Network Topology,"** *IEICE Tech. Rep.*, vol. 117, no. 472, IA2017-73, pp. 37–42, March 2018.
2. Yutaro Hayakawa, Hiroki Watanabe, Kazuya Okada, **"cnfv: A Container-based Lightweight NFV Architecture,"** *IEICE Tech. Rep.*, vol. 117, no. 303, NS2017-111, pp. 1–6, November 2017.
3. Hiroki Watanabe, Takao Kondo, Kunitake Kaneko, Fumio Teraoka, **"Underway-aware Virtual Network Construction Infrastructure,"** *The Eighteenth Workshop on Internet Technology (WIT2017)*, Matsuyama, June 2017.
4. Daiki Mitake, Hiroki Watanabe, Kunitake Kaneko, Fumio Teraoka, **"Extension of Layer-5 for DTN on ZNA, a New Generation Network Architecture,"** *IEICE Tech. Rep.*, vol. 116, no. 434, IA2016-89, pp. 61–66, January 2017.
5. Hiroki Watanabe, Kunitake Kaneko, Fumio Teraoka, **"A Prototype Implementation of Session Layer on New Generation Network Architecture ZNA,"** *IPSJ SIG Tech. Rep. on the 78th National Convention of IPSJ*, vol. 2016, no. 1, pp. 81–83, March 2016.
6. Hiroki Watanabe, Kunitake Kaneko, Fumio Teraoka, **"L5-path: A Session Layer Protocol on ZNA, a New Generation Network Architecture,"** *IEICE Tech. Rep.*, vol. 115, no. 482, IA2015-103, pp. 191–196, March 2016. (Student Incentive Award)
7. Hiroki Watanabe, Keigo Mizotani, Yusuke Hatori, Hiroyuki Chishiro, Nobuyuki Yamasaki, **"A Low Latency Real-Time Execution with Interrupt Wake-up Structure,"** *IPSJ SIG Tech. Rep. on the Embedded System Symposium 2015*, pp. 531–543, October 2015.

## AWARDS

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1. **"Student Incentive Award,"** IEICE-IA, March 2016.